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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,332	01/09/2004	Kia Silverbrook	DAM09US	7125

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393 DARLING STREET  
BALMAIN, NSW 2041  
AUSTRALIA

EXAMINER

EWALD, MARIA VERONICA

ART UNIT	PAPER NUMBER
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1722

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/753,332

Applicant(s)

SILVERBROOK, KIA

Examiner

Maria Veronica D. Ewald

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/15/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 – 7, 9 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawaguchi (U.S. 5,833,914). Kawaguchi teaches a printing system including at least two printheads printing a first material and a second one of the printheads printing a second material, the first material being cured by a first method and the second material being cured by a second method and wherein the first and second methods are different (column 8, lines 22 – 25, 40 – 45, 64 – 65; column 9, lines 9 – 15); wherein the first and second methods include at least one method selected from a group including: evaporative drying, freezing of material ejected when molten; ultraviolet curing; addition of a curing agent (column 9, lines 9 – 15); wherein the first and second methods includes printing of a curing agent simultaneously or sequentially with the respective material (column 11, lines 25 – 30; column 12, lines 55 – 60); wherein the first and second methods includes printing of a curing agent selected from a group including: a

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catalyst, a polymerization initiator, a compound that reacts with the respective material (column 12, lines 10 – 20, 25 – 30).

With respect to claims 5 – 7, the reference further teaches that the system is a three dimensional object creation system that prints objects layer by layer, the system printing at least part of each of multiple layers simultaneously (column 5, lines 25 – 30); and wherein the system includes a plurality of printheads (column 8, lines 22 – 25, 40 – 45, 64 – 65); wherein each layer is defined by a plurality of voxels arranged in a regular array and wherein the voxels of each layer are printed so as to be offset by half a voxel relative to the voxels of adjacent layers in a first direction, a second direction perpendicular to the first direction or both the first and second directions (column 1, lines 45 – 55; column 5, lines 15 – 25; column 8, lines 40 – 50, 64 – 66).

With respect to claims 9 and 18, Kawaguchi further teaches that the printheads are configured such that at least one of the layers may be printed with a first set of materials and at least one other of the layers may be printed with a second set of materials, and wherein the first and second sets are not the same (column 8, lines 20 – 25, 64 – 67) and wherein a first printhead is actively maintained at a first temperature and a second printhead is actively maintained at a second temperature (column 8, lines 20 – 25, 64 – 67).

Claims 1 – 13 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Gothait (U.S. 6,658,314). Gothait teaches a printing system including at least two printheads printing a first material and a second one of the printheads printing a second

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material, the first material being cured by a first method and the second material being cured by a second method and wherein the first and second methods are different (column 5, lines 12 – 16, 30 – 35, 40 – 50) wherein the first and second methods include at least one method selected from a group including: evaporative drying, freezing of material ejected when molten; ultraviolet curing; addition of a curing agent (column 5, lines 20 – 25) wherein the first and second methods includes printing of a curing agent simultaneously or sequentially with the respective material (column 5, lines 20 – 22); wherein the first and second methods includes printing of a curing agent selected from a group including: a catalyst, a polymerization initiator, a compound that reacts with the respective material (column 5, lines 20 – 22).

With respect to claims 5 – 10, Gothait further teaches that the system is a three dimensional object creation system that prints objects layer by layer, the system printing at least part of each of multiple layers simultaneously (column 5, lines 30 – 45); and wherein the system includes a plurality of printheads (column 5, lines 12 – 13); wherein each layer is defined by a plurality of voxels arranged in a regular array and wherein the voxels of each layer are printed so as to be offset by half a voxel relative to the voxels of adjacent layers in a first direction, a second direction perpendicular to the first direction or both the first and second directions (column 6, lines 15 – 30); wherein the printheads are configured to enable printing of at least two different materials in at least one layer (column 5, lines 30 – 35); wherein the printheads are configured such that at least one of the layers may be printed with a first set of materials and at least one other of the layers may be printed with a second set of materials, and wherein the first and second

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sets are not the same (column 5, lines 30 – 39, 45 – 55); and wherein the system is configured to enable at least one first printhead that is initially configured to print at least part of a first layer to be dynamically reconfigured to print at least part of a second layer (column 5, lines 20 – 25, 30 – 35; column 6, lines 35 – 45, 50 – 55).

With respect to claims 11 – 13 and 18, Examiner is noting that the apparatus and system of Gothait is capable of executing and being configured to enable at least one first printhead that is initially configured to print at least part of a first layer to be dynamically reconfigured to print at least part of a second layer, and wherein if at least one printhead initially configured to print the second layer fails whilst printing said second layer, said at least one first printhead is dynamically reconfigured to complete the printing at least of said second layer (column 5, lines 20 – 30; column 6, lines 20 – 30; column 7, lines 1 – 20); wherein the system includes semiconductor memory and wherein data defining at least one layer is stored in the semiconductor memory (column 5, lines 20 – 30); wherein the system executes a process, the system including a plurality of subsystems, each of which performs a stage of the process, each of the subsystems configured to perform one of a first subset of  $N1$  of the stages, where  $N$  is greater than 1 and to change the stage of the subset being performed on receipt of a change instruction; wherein in the event that one of the subsystems fails, at least one of the remaining subsystems synchronously changes to performing the respective stage of the failed subsystem without requiring transfer of data relating the respective stage to the said at least one remaining subsystems, and when a subsystem changes to performing a different stage, the system reconfigures the subsystem to be capable of

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performing a second subset N2 of the stages where N1 and N2 have the same number of stages (figures 1 and 5; column 6, lines 20 – 30; column 7, lines 1 – 20) and wherein the system including at least two printheads, wherein a first printhead is actively maintained at a first temperature and a second printhead is actively maintained at a second temperature (column 5, lines 18 – 30).

***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi or Gothait in view of O'Connor (U.S. 5,705,117). Kawaguchi and Gothait teach the characteristics previously described but do not teach that a non-printed object can be inserted into the product.

In a method to produce components via stereolithography, O'Connor teaches that a non-photopolymer component or item can be inserted into the prototype product being manufactured. Examples of insert members include metal or ceramic members (column 2, lines 38 – 42). As in other stereolithography systems, there is a CAD design used to create the prototype (column 6, lines 24 – 25). A microprocessor is programmed to translate the CAD data to create the appropriate STL files, from which the prototype will be manufactured, layer by layer (column 6, lines 38 – 42). The prototype is partly

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built and then, the system is stopped, at which time the metal or ceramic insert is placed into the cavity (column 6, lines 45 – 50). This reads on the Applicant's claims that the system include at least one printhead for printing material to create a printed product, and an object incorporation device that incorporates inorganic semiconductors into the product being printed whilst the at least printhead prints the product; and wherein the system includes at least one object incorporation device that incorporates non-printed objects into the partially complete product, the non-printed objects not being printed by the system; wherein an object incorporation device that inserts at least one non-printed object into at least one cavity created during the printing process, the object incorporation device incorporating the at least one non-printed object into the at least one cavity during the printing of the respective printed object; and wherein the system includes at least one printhead that prints electrical connections to at least one object incorporated in the products.

It would have been obvious at the time of the Applicant's invention to one of ordinary skill in the art to modify the system of Kawaguchi or Gothait to incorporate the object incorporation device of O'Connor for the purpose of inserting a ceramic or metal component into a designated cavity of the prototype, if necessary, depending on what type of prototype is being manufactured.

### ***References of Interest***

15. Danforth, et al. (U.S. 5,997,795), Akram (U.S. 6,326,698), and Schmidt (U.S. 6,841,116) are cited of interest to show the state of the art.



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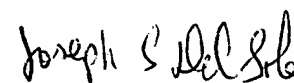
***Conclusion***

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Veronica D. Ewald whose telephone number is 571-272-8519. The examiner can normally be reached on M-F, 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MVE

  
JOSEPH S. DEL SOLE  
PRIMARY EXAMINER  
2/17/06